

OBSERVATIONS ON THE GENUS MARGARITANA WITH A NEW
SUB-GENUS.

BY L. S. FRIERSON

The type species of this genus, *M. margaritifera*, does not live in waters having any considerable amount of lime in solution, which fact has not perhaps been given its due weight in the explanation of the great gaps in the territory occupied by it, such as almost the whole of the central portion of Northern America.

This unoccupied territory is usually explained upon the theory of the glacial age, but it is hard to understand why the ice-covered regions were not repopulated *pari passu* with the melting of the ice sheets. There are two closely akin species living in America, separated by the space between Pennsylvania and Alabama, and Utah and Louisiana, these being the *margaritifera* and *hembeli*.

The latter species is generally supposed to live in the waters adjacent to New Orleans, since Conrad's original *envois* came from that city, but the collector, Dr. Hale, lived also in Alexandria, near which place the great alluvial deposits of the Red and Mississippi rivers join the sandy, pine clad hills of Louisiana, and from one of the "clear water" creeks flowing out of these hills, the writer has obtained numbers of Conrad's shell, and it is almost certain that this creek is the type locality.

From a similar environment Mr. B. H. Wright obtained the same species in Alabama, i. e., from the lime free creeks of the pine hill section. The Alabama shells are heavily sculptured, but these from Louisiana are often quite smooth, and the resemblance to the type is striking.

Three species occur in Europe, (to which dozens of names have been affixed). These are the *margaritifera*, whose lateral teeth are almost obsolete; the *crassa*, whose laterals are quite well developed, and the *auricularia*, of Spengler, recently re-discovered by Dr. Haas in Spain. The latter appears to be the analogue of *M. hembeli* in being sculptured, and like the latter, grows in the southern portion of the range.

In the Chinese territory three or four species exist, of which however but two are listed as such in the current literature.

The type species has as usual received several names, but preserves its identity remarkably well.

The *Margaritana laosensis* Lea in having well-developed laterals, may be said to be the analogue of the *crassa*.

In this genus also belongs one, certainly, and possibly three or four species which have been placed in other genera, as will be shown.

MARGARITANA MURINA (Heude), 1877.

Unio murinus Heude.

Ptychobranthus murinum Simpson, 1900.

Unio compressus Simpson (*non* Heude), 1900.

That Heude's *Unio murinus* is a member of *Margaritana* is shown in its close agreement in shape, in its color, both of epidermis and nacre; in its obsolete and short lateral teeth, and perhaps most strikingly, in the characteristic elongate-elliptical posterior adductor scars. *Ptychobranthus pfisteri* has differently colored epidermis and nacre; its laterals are well developed, and, as Heude observed (subsequently) its lateral teeth and ligament are of equal length, and the posterior adductor is short and nearly round. Heude states that the beaks of *murinus* are widely and profoundly undulated, whence the species is made the type of the subgenus *Heudeana*.

MARGARITANA SIMPULARIS (Heude), 1884.

Unio simpularis Heude.

Unio modestus Heude, 1877.

Parreysia simpularis Simpson, 1900.

Parreysia modesta Simpson, 1914.

The dimensions of this species given by Heude would indicate quite an inflated shell, whence Simpson placed it tentatively in *Parreysia*, but no errors are at once so common, so difficult of detection, and impossible of correction as those of concrete numbers, while on the other hand the character given by Heude, "compressed", allows no compromise. Heude com-

pared his species several times later on, and he states that it resembles the *murinus*, *ect*, and chiefly among other characters, in its obsolete laterals. The species appears to be closely allied to *murinus*, and is probably a variety of it. Heude changed his first name, since that was preoccupied, and this was followed by Simpson in his Synopsis of 1900, but in his Catalogue of 1914 he uses the name *modesta*, on the ground that the *modestus* Fér. not having been described by Férussac, was a *nomen nudum*. Simpson forgot the *Unio modestus* Küster, 1856.

The *decumbens* Lea, is usually listed as a member of *Margaritana*, but Lea's type, which is the single example known, has been carefully inspected by the writer, and it is absolutely nothing more than a pathological specimen of one of the *Unio complanatus* aggregation, and the name should be dropped from lists of valid Naiades.

Specimens before me bearing the name of *Ptychobranchus laevis* Haas, from Saghalien, are unquestionably *Margaritana*, but since they were obtained from a dealer, and I have seen no figure of Haas' species, I hesitate to approximate them, yet they agree with his description very well.

VARIATION IN MOLLUSCA OF THE MADEIRA ISLANDS.

BY T. D. A. COCKERELL.

Boog Watson, in 1892 (Journ. Conch., Vol. VII, no. 1), remarked that the many endemic land snails of the Madeiras were all distinct. "Between themselves there is no swaying of the lines to and fro, they do not bifurcate, they do not pass over from one form into another, they give off no spots maturing into distinct species." In the presence of a large series of these shells it is difficult to see how Watson could have formed such an opinion, as there are in fact numerous "critical" forms. There is also a considerable amount of "individual" or local variation, some examples of which are recorded below. One fact is curious, that no one seems ever to have found a sinistral mutation.